

1                   **(February 17, 1998)**

2                   **Portable Changeable Message Sign (PCMS)**

3                   The PCMS shall meet the requirements of the MUTCD and the following:

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5                   The PCMS shall employ one of the following technologies:

- 6  
7                   1. Back-lighted split-flap  
8                   2. Fiber optic/shutter  
9                   3. Light emitting diode  
10                  4. Light emitting diode/shutter  
11                  5. Flip disk

12  
13                  Regardless of the technology, the PCMS shall meet the following  
14                  general requirements:

- 15  
16                  1. Be light emitting and must not rely solely on reflected light.  
17  
18                  2. Have a display consisting of individually controlled pixels no  
19                  larger than 63 mm by 63 mm. If the display is composed of  
20                  individual character modules, the space between modules  
21                  must be minimized so alphanumeric characters of any size  
22                  specified below can be displayed at any location within the  
23                  matrix.  
24  
25                  3. When activated, the pixels shall display a yellow or orange  
26                  image. When not activated, the pixels shall display a flat  
27                  black image that matches the background of the sign face.  
28  
29                  4. Be capable of displaying alphanumeric characters that are a  
30                  minimum of 450 mm in height. The width of alphanumeric  
31                  characters shall be appropriate for the font. The PCMS shall  
32                  be capable of displaying three lines of eight characters per  
33                  line with a minimum of one pixel separation between each  
34                  line.  
35  
36                  5. The PCMS message, using 450 mm characters, shall be  
37                  legible by a person with 20/20 corrected vision from a  
38                  distance of not less than 240 meters centered around an axis  
39                  perpendicular to the sign face.  
40  
41                  6. The sign display shall be covered by a stable, impact resistant  
42                  polycarbonate face. The sign face shall be non-glare from all  
43                  angles and shall not degrade due to exposure to ultraviolet  
44                  light.  
45  
46                  7. Be capable of simultaneously activating all pixels for the  
47                  purpose of pixel diagnostics. Any sign that employs flip disk  
48                  or shutter technology shall be programmable to activate the  
49                  disks/shutters once a day to clean the electrical components.

- 1 This feature shall not occur when the sign is displaying an  
2 active message.  
3
- 4 8. The light source shall be energized only when the sign is  
5 displaying an active message.  
6
- 7 9. Be equipped with a redundant light source such that the sign  
8 will continue to emit light if one of the light sources fails.  
9
- 10 The PCMS panels and related equipment shall be permanently  
11 mounted on a trailer with all controls and power generating equipment.  
12
- 13 The PCMS shall be operated by an easy to use controller that provides  
14 the following functions:  
15
- 16 1. Select any preprogrammed message by entering a code.  
17 2. Sequence the display of at least five messages.  
18 3. Blank the sign.  
19 4. Program new message, which may include moving arrows  
20 and chevrons.  
21 5. Mirror the message currently being displayed or programmed.  
22
- 23 Portable changeable message signs(s) shall be available, on site, for  
24 the life of the project.  
25
- 26 The Contractor shall operate the PCMS in accordance with the  
27 approved traffic control plans or as directed by the Engineer. The  
28 PCMS shall not be used in lieu of sequential arrow signs.